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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,320	01/04/2006	Jan Gerrit Kortes	4662-122	8420
23117 7590 04/01/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
INYARD, APRIL C				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
04/01/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/563,320

**Applicant(s)**

KORTES ET AL.

**Examiner**

APRIL C. INYARD

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is responsive to Applicant's Amendment and Remarks, filed January 29, 2009, which Claims 1-6 are amended to change the breadth of the claims, where Claim 2 is amended to be written as an independent claim by reciting all limitations of Claim 1 from which Claim 2 depended; and new Claims 12-25 are added as range limitations to the claims from which they dependent.

This application is the national stage entry of PCT/EP04/07837, filed July 12, 2004; and claims benefit of foreign priority document EP 03102180.1 filed July 16, 2003. The foreign priority document is in English.

Claims 1-25 are pending in the current application.

### ***Objections Withdrawn***

Applicant's amendment filed January 29, 2009, with respect to objection to the specification and Claims 1, 3-6, and 8 has been fully considered and is persuasive, because minor errors have been corrected and Applicant's definition of "fat note" has been clarified.

These objections have been **withdrawn**.

### ***Rejections Withdrawn***

Applicant's amendment filed January 29, 2009, with respect to the rejection of **Claims 2-6** under 35 U.S.C. 112, second paragraph, has been fully considered and is persuasive because amendments include new claims 12-25 to provide definite range limitations for Claims 2-6.

These objections have been **withdrawn**.

**The following new or modified rejections are necessitated by Applicant's Amendment, filed January 29, 2009, in which Claims 1-2 are amended to change the scope and breadth of the claims; and new Claims 12-25 are added.**

**The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.**

***Claim Rejections - 35 USC § 112***

1. **Claims 1-25** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claims 1 and 2** recite the limitation: "providing only a minimal taste or specific note of yeast extract itself". However, term "minimal" is a relative term which renders the claim indefinite. The term "minimal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

**Claims 5-6** recite the limitation "the total amount of 5'-GMP and 5'-IMP in the yeast extract". However, there is insufficient antecedent basis for this limitation in the claim as Claim 1 broadly claims 5'-ribonucleotides without specifically claiming either 5'-GMP or 5'IMP are present in the yeast extract.

**Claim 11** recites the limitation that the food product of Claim 8 is derived from a fat or oil-product. However, claim 8 is a food with a "reduced amount of fat"; it is not clear how the

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limitation "fat or oil product" affects the scope of the claim. As most foods may be considered to be derived from a fat or oil product; especially, when one looks at the food chain as a whole.

Additionally, term "derived from" renders the claim indefinite as it is unclear what material is actually being claimed. In the grand scheme of the food chain, carbohydrates may be derived from fats as shown in the following glyoxylate pathway

([http://www.sigmaaldrich.com/etc/medialib/docs/Sigma/generalinformation2/ce\\_minimap\\_14.Pa\\_r.0001.File.tmp/ce\\_minimap\\_14.pdf](http://www.sigmaaldrich.com/etc/medialib/docs/Sigma/generalinformation2/ce_minimap_14.Pa_r.0001.File.tmp/ce_minimap_14.pdf)):



**Claims 3-4 and 7-10 and 12-25** are rejected due to their dependency from Claims 1-2 and 5-6.

***Claim Rejections - 35 USC § 102***

2. **Claims 1, 7-9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Potman (US Patent No. 5,288,509) as evidenced by “Creaminess: A Question of Flavor” (Prepared Foods, July 1992):**

The Examiner gives the broadest possible interpretation to Applicant’s claim terminology broadly, whereby the Examiner considers any method that adds a yeast extract having a composition that meets the limitations of the instant claims to a food with a reduced amount of fat therefore to meet the claimed limitations.

**Regarding Claims 1 and 8,** Potman teaches a yeast extract comprising 5-80% by weight free amino acids and 0.1-15% by weight of guanosine-5'-monophosphate, which is a 5'-ribonucleotide (*Col 4, lines 15-22*). Potman further discloses a method of adding such a yeast extract composition to foods to improve the flavors in amounts ranging from 0.15 and 5% by weight of the food (*Col 4, line 51*), where one such food includes margarine (*Col 4, lines 40-51*).

The Examiner notes that the weight percent of 5'-ribonucleotides taught by Potman meet the limitation of at least 8% of instant Claim 1.

As evidenced by Prepared Foods, “5'-nucleotides are natural derivatives of the genetic material of yeasts. The nucleotides contribute a significant salt-sparing and ‘umami’-like effect to flavor profiles, which also gives them a role as salt- and HVP extenders or replacers in foods. Their flavor modulation compensates for the flavor contributions of fatty ingredients.”

The Examiner notes that margarine is a reduced fat or fat free alternative to full fat butter. As evidenced by "Prepared Foods" addition of 5'-nucleotide rich extracts compensate, or take the place of, the flavor contributions of fatty ingredients.

The Examiner further notes that Potman improves the flavor of foods by adding a yeast composition that meets the limitations of Claim 1 to foods in a weight percent ranging from 0.15 to 5% as discussed above, and points out that Applicant uses similar percentages relative to food.

As Potman discloses the method of adding a yeast extract having a 5'-ribonucleotide weight percent that meets the limitations of instant Claim 1 to a food product such as margarine, the Examiner deems that the resulting flavor improvement will inherently compensate for the taste profile of fatty ingredients, and thus provide richness and fat notes to reduced or low fat foods that otherwise taste harsh or flat.

Therefore, the Examiner takes the position that Potman discloses a method for improving a fatty flavor profile in a reduced fat food that meets the limitations of **Claim 1**.

**Regarding Claims 8-9 and 11**, as discussed above, Potman teaches a method that meets the limitations of Claim 1. Potman teaches addition of a yeast extract containing 5'-ribonucleotides to improve the flavor profile of foods such as margarine, where as evidenced by "Prepared Foods" this flavor modulation compensates for the flavor contributions of fatty ingredients.

The Examiner points out, that margarine is a known reduced fat dairy product that is derived from a fat or oil-product.



The Examiner deems that Potman teaches a food with a reduced amount of fat that has an improved fatty flavor profile due to addition of the above discussed 5'-ribonucleotide containing yeast extract, where margarine is both a dairy product and food derived from fat or oil.

Therefore, Potman teaches a food that meets the limitations of **Claims 8-9 and 11**.

Regarding the limitation of **Claim 7** toward a sodium chloride content in the yeast extract of at most 8%, Potman is silent with respect to sodium chloride content. Potman therefore teaches that the yeast extract contains less than 8% sodium chloride, and thus meets the limitations of Claim 7.

3. **Claims 1-8 and 12-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kortes et al. (WO 03/063614 A1) as evidenced by DSM Food Specialties Maxarome® Yeast Extract ([http://www.dsm.com/en\\_US/html/dfs/news\\_items/maxarome\\_fi\\_asia.htm](http://www.dsm.com/en_US/html/dfs/news_items/maxarome_fi_asia.htm), publication date Oct. 18, 2002; [http://www.dsm.com/en\\_US/html/dfs/si-maxarome.htm](http://www.dsm.com/en_US/html/dfs/si-maxarome.htm)).**

The applied reference(s) has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

**Regarding the limitations of Claims 1-7 and 12-25**, Kortes teaches a yeast extract having free amino acids and at least 8% w/w of 5'-ribonucleotides that is added to foods that include diet/light beverages (*pp. 3-5 and Claims 1-7*). The composition and properties of the 5'-

nucleotide rich yeast extract used in the method to improve the taste and flavor profile of light or diet beverages in the Examples provided by Kortess meets the limitations of the Applicant's claims (*p. 6*):

\* Maxarome Plus LS powder is a yeast extract comprising 5'-ribonucleotides. It comprises 13% w/w of total 5'-ribonucleotides, 6.5% w/w of 5'-IMP + 5'-GMP, 11.8% w/w of free amino acids, these percentages all based on NaCl free yeast extract dry matter, 0.8% w/w of NaCl and a degree of protein hydrolysis of 34%.

As evidenced by DSM Food Specialties, the Maxarome® product line of yeast extracts is a high 5'-nucleotide containing yeast extract that has taste profiles varying from "ultra clean and neutral to intrinsic bouillon/broth notes", where in October, 2002, DSM teaches addition of Maxarome® to fish, vegetables, and dairy foods for natural flavor enhancement, "improved mouthfeel and umami sensation" with a "clean, neutral taste" that acts by "rounding off" and "harmonizing each different flavor characteristic" of the food product to which it is added; and further, because Maxarome® contains no synthetic notes, it renders the overall flavor system more authentic to the original.

Kortess discloses a method of improving the taste and fullness of a diet or light beverage through addition of a yeast extract with the above described composition, Maxarome® Plus LS powder manufactured by DSM Food Specialties (*pp. 6-9 Examples*).

Kortess discloses that 5'-nucleotide rich extracts are of particular benefit due to the high content of 5'-nucleotides relative to free amino acids and provide for the improvement of the taste and/or aroma while any taste/note properties of the yeast extract, generally a bouillon or brothy taste, is absent (*p. 3, lines 6-13*).

Kortes teaches that such 5'-nucleotide rich yeast extracts "find their application in soups, sauces, marinades, flavour seasonings, meat, vegetables, and gravies" (*p. 1*) and also provides an example where the texture and mouthfeel of tomato juice is enhanced through the addition of 5'-nucleotide containing yeast extract (*Example 2, pp. 7-8*).

Regarding **Claim 8**, The Examiner takes the position that vegetables and tomato juices to be reduced fat foods.

Therefore, the Examiner takes the position that Kortes teaches a method and food that meets the limitations of **Claims 1-8 and 12-25**.

***Claim Rejections - 35 USC § 103***

**4. Claims 1-3 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyanagi (JP 2002-101846 A; citations are toward the machine translated text).**

Aoyanagi ('846) discloses a yeast extract rich in 5'-nucleotides that does not have a "yeasty aroma" but has a concentrated taste associated with 5'-nucleotides ('846, *translation paragraph [0001]*) widely used for food seasoning and flavor ('846, *translation paragraph [0002]*) wherein the 5'-nucleotide content, specifically 5'-GMP (guanylic) and 5'-IMP (ionisinic), is 10% or more (*pars. [0005] and [0011]*). Aoyanagi provides several working examples where the content of 5'-ribonucleotides is summarized as follows: Example 1: 18.5% 5'-GMP; Example 2: 18% 5'-GMP and 14% 5'-IMP; Example 3: 25% 5'-GMP ranges from *and working Examples*).

This yeast extract composition meets the limitations of the yeast extract composition as claimed by Applicant in Claims 1-3 and 8.

Aoyanagi teaches a method of adding the yeast to a food to improve the flavor fullness without the added yeasty taste often associated with addition of yeast extracts to foods, which can be attributed to such a high 5'-ribonucleotide content.

Aoyanagi does not specifically teach the method of adding such a yeast extract to a reduced fat food such as a dairy or bakery product or a product derived from a fat or oil.

However, at the time of the invention, it would have been obvious to one having ordinary skill in the art to try adding the yeast extract taught by Aoyanagi to various kinds of food products including foods that are typically associated with a flatness in flavors such as reduced fat dairy, bakery or fat/oil-derived foods to yield the predictable result of improving the overall flavor profile of all kinds of foods and determining which foods are most improved by additions of such yeast extracts.

5. **Claims 2-6 and 12-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potman (US Patent No. 5,288,509) as evidenced by “Creaminess: A Question of Flavor” (Prepared Foods, July 1992):**

As discussed above, Potman teaches a method and food that meets the limitations of Claims 1 and 8, respectively.

Regarding **Claims 2-3 and 12-16** Potman teaches that the yeast extract has 20-84% by weight of protein material wherein 4-75% by weight is peptides and 5-80% by weight are free amino acids, and 0.1-15% by weight are 5'GMP (5'-ribonucleotides) (*Col 4, lines 15-21*).

The range taught by Potman meets the limitation of Claim 3 where, 5'-GMP is present in a total amount of at least 4%.

Potman additionally teaches a yeast extract in Example 6 that contains 3.3% 5'-IMP and 3.3% 5'-GMP, which also meets the limitations of a total of at least 4%.

The range taught by Potman (0.1-15%) overlaps the Applicant's ranges in Claims 2 (between 10-50%) and Claims 12-16 (5-25%).

As evidenced by "Prepared Foods", reduced fat food such as salad dressing and cheese may be perceived as being more harsh and may lack a richness resulting in a flat taste, whereas addition of yeast extract-based flavor systems containing 5'-nucleotides compensate for the altered flavor profiles of reduced fat foods such as soups, gravies, cheeses, snacks, entrees and sides dishes.

Therefore, at the time the invention was made, it would have been obvious to one having ordinary skill in the art to adjust and to try various amounts of 5'-GMP in the yeast extract taught by Potman because this yields the predictable result of modifying or intensifying the flavor profile of the food to which the extract is added as the main component that compensates for the fatty tastes without adding the additional salty flavor in reduced fat foods is known to be 5'-nucleotides such as 5'-GMP.

Furthermore, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Potman overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, *In re Peterson*, 65 USPQ2d 1379 (CAFC 2003).

Also see: *In re Geisler* 43 USPQ2d 1365 (Fed. Cir. 1997); *In re Woodruff*, 16 USPQ2d 1934 (CCPA 1976); *In re Malagari*, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding Claims 5-6 and 21-25, the Examiner gives the limitations of Claims 5-6 and 21-25 regarding “total amount of 5'-GMP and 5'-IMP” their broadest reasonable interpretation which is to say that as such, either one or the other (5'-GMP or 5'IMP), or both 5'-ribonucleotides may yield a “total amount” to be present. For example, a yeast extract containing only 5'-GMP or only 5'-IMP meets the limitations of a “total amount of 5'-GMP and 5'-IMP”.

Regarding the limitations of **Claims 4 and 17-20**, Applicant claims that the degree of protein hydrolysis is at most 50% (Claim 4), between 5-45% (Claim 17), between 10-45% (Claim 18), between 20-45% (Claim 19), and between 30-45% (Claim 20), and therefore this would result in a yeast extract with a free amino acid content ranging between 5-50%.

As discussed above, Potman teaches that the free amino acid content ranges from 5-80% by weight.

Therefore, at the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the amount of protein hydrolysis in the yeast extract as taught by Potman to limit the degree of hydrolysis to at most 50% because the range for free amino acids, which results from the degree of protein hydrolysis, taught by Potman is substantially

close to that of the instant claims; and Potman further teaches that the peptide content, and therefore proteins that have not undergone hydrolysis, of the yeast extract is 4-75% by weight, and therefore likewise encompasses Applicant's claimed range for degree of protein hydrolysis.

Regarding the limitations of **Claims 5 and 21-23** toward the ratio between the percentage of free amino acids and total amount of 5'-ribonucleotides, as discussed above, Potman teaches that the total protein content of the yeast extract is 20-84% by weight wherein peptides are 4-75% by weight, free amino acids are 5-80% by weight, and 0.1-15% are 5'-GMP.

Therefore Potman teaches that the range for the ratio between the percentage of free amino acids and the total amount of 5'-nucleotides (5'-GMP) can vary, and encompasses the ratios of the instant claims (ratio from at most 2 to 3.5) given that the percentage ranges for the yeast extract free amino acid content can be 16% while the 5'-GMP content can be 8% to yield a ratio of 2, or likewise 14% while the 5'-GMP content is 4% to yield a ratio of 3.5.

Potman likewise teaches that the yeast extract meets the limitations of **Claims 6 and 24-25** as the percentage ranges for the yeast peptide content ranges from 4-75% while 5'-GMP ranges from 0.1-15% and thus the ratios of peptide (protein) to 5'-GMP can vary, and encompasses the ratios of the instant claims (at most 12) given that the percentage ranges for the peptide content can be 12% while 5'-GMP can be 4%.

Furthermore, as Potman teaches ranges that are substantially close to those of the instant claim, one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious, and to have the same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

6. **Claims 2-3, 12-16, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potman (US Patent No. 5,288,509) in view of Aoyanagi (JP 2002-101846 A; citations are toward the machine translated text) and *Thermal Process Flavorings* (Food Flavorings (3rd Edition), Chapter 9, pages 283-325).**

As discussed above, Potman ('509) teaches a method and food product that meets the limitations of Claims 1, 8-9 and 11.

Potman teaches that the 5'-GMP weight percent ranges from 0.1-15%, which overlaps the Applicant's claimed range of 10 to 50% as discussed above.

Alternatively, as discussed above Aoyanagi ('846) discloses a method that meets the limitations of the extract claimed by Applicant in Claims 1-3, and the 5'-ribonucleotide content of the yeast extract taught by Aoyanagi is encompassed by Applicant's claimed range of 10-50%.

Therefore, regarding the limitations of **Claims 2-3 and 12-16**, at the time of the invention, having the teachings of Potman and Aoyanagi in front of him or her, it would have been obvious to one of ordinary skill in the art to adjust the 5'-ribonucleotide content in the yeast extract as taught by both Potman and Aoyanagi because it is replete in the art that the degree by which the taste and/or aroma and/or mouthfeel of a food product, without the added "yeasty" flavor, is influenced by the concentration of 5'-nucleotides in the yeast extract.

Furthermore, both Potman and Aoyanagi teach the importance of 5'-nucleotide content in yeast extracts as a savory flavor additive, where Aoyanagi in particular discloses that this savory quality enriches the flavor of a food without adding a yeasty taste.



The Examiner therefore interprets the meaning of the word "savory" in this context as a rich and full flavor quality.

Given the teaching that it is the 5'-nucleotide content that is responsible for adding the flavor of fullness, and the free amino acid and peptide content are traditionally known to be the primary components that contribute to the yeasty flavors, it would have been obvious to one having ordinary skill in the art to minimize the amount of free amino acids and protein peptides in the yeast extract content relative to the 5'-ribonucleotides which impart the more desirable flavors.

Therefore, regarding the limitations of **Claims 5-6 and 21-25** toward the ratios between either the free amino acids or protein and the 5'-ribonucleotides, the Examiner deems that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a results effective variable such as the ideal ratio between either free amino acid or peptide protein content and the 5'-ribonucleotide content in the yeast extracts of either Potman or Aoyanagi through routine experimentation, especially given the teaching in Aoyanagi regarding the desire to produce a yeast extract that is extremely rich in 5'-ribonucleotides for flavoring foods without adding a yeasty taste. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

7. **Claims 4, 7 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potman (US Patent No. 5,288,509) in view of *Thermal Process Flavorings* (Food Flavorings (3rd Edition), Chapter 9, pages 283-325).**

Regarding the limitations of **Claims 4, 7 and 17-20**, as discussed above, Potman teaches a method that meets the limitations of Claim 4, and while Potman does not specifically disclose the degree of protein hydrolysis, as discussed above, the Examiner takes the position that the degree of protein hydrolysis can be represented by the amount of free amino acids and peptides in the yeast extract.

However, the reference, *Thermal Process Flavorings*, discloses that Autolyzed Yeast Extracts or Yeast Extracts as specified in the *Food Chemical Codex* have the following properties (*Food Flavorings, Chapter 9.10.3, p. 317*):

*Functional use in foods:* Flavoring agent; flavor enhancer.

*Requirements:* Calculate all analyses on the dry basis. In a suitable tared container, evaporate liquid and paste samples to dryness on a steam bath, then, as for powdered and granular form, dry to constant weight at 105° C.

*Assay (protein):* Not less than 42.0% protein.

*α-Amino nitrogen/total nitrogen (AN/TN) percent ratio:* Not less than 15.0% or more than 55.0%.

*Ammonia nitrogen:* Not more than 2.0% calculated on a dry, salt-free basis.

*Glutamic acid:* Not more than 12.0% as  $C_5H_9NO_4$  and not more than 28.0% of the total amino acids.

*Heavy metals (as Pb):* Not more than 10 mg/kg.

*Insoluble matter:* Not more than 2%.

*Lead:* Not more than 3 mg/kg.

*Mercury:* Not more than 3 mg/kg.

*Microbial limits:*

*Aerobic Plate Count:* Not more than 50,000 CFU per gram.

*Coliforms:* Not more than 10 per gram.

*Yeast and molds:* Not more than 50 CFU per gram.

*Salmonella:* Negative in 25 g.

*Potassium:* Not more than 13.0%.

*Sodium:* Not more than 20.0%.

As discussed above, Potman teaches that the total protein content of the yeast extract is 20-84% by weight wherein peptides are 4-75% by weight, free amino acids are 5-80% by

weight, and the method whereby such extracts are added as flavor profile enhancers in foods such as margarine.

As taught by *Thermal Process Flavorings*, in designing yeast extracts as flavoring agents and enhancers, the Examiner points out that a "flavor enhancer" is something that boosts a particular flavor and that one of ordinary skill would recognize that the flavors of a food product such as margarine as taught by Potman would be enhanced to taste full and rich by the addition of a yeast extract as taught by Potman, and therefore taste more like full-fat butter and less like a butter substitute.

*Thermal* teaches that such extracts have a free amino acid (AN) to total protein (TN) ratio not less than 15% and not more than 55%, which one having ordinary skill in the art would readily recognize as a measure of the degree of protein hydrolysis. Therefore *Thermal* teaches that a desirable degree of hydrolysis of the protein content in yeast extracts used as flavor enhancers is within the Applicant's claimed range of up to 50% absent evidence to suggest otherwise.

Further, Potman is silent regarding the sodium chloride content in the yeast extract, and therefore as discussed above teaches a yeast extract that has at most 8% sodium chloride.

Additionally, *Thermal* teaches that in designing yeast extracts as flavoring agents, sodium chloride content should be at most 20%.

Therefore, at the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the yeast extract as taught by Potman given that *Thermal Process Flavorings* teaches the basic standards in the art of designing yeast extracts and because

when such yeast extracts are added to a reduced fat food such as margarine as taught by Potman will result in a margarine with a richer, flavor-enhanced taste.

**8. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kortes et al. (WO 03/063614 A1).**

As discussed above, Kortes teaches a method and food that meet the limitations of Claims 1 and 8.

The Examiner points out that Kortes teaches application of the method to foods including soups, sauces, marinades, flavor seasonings, meat, vegetables, and gravies in addition to providing examples where the yeast extract is added to diet or light beverages.

Kortes further discloses that the addition of 5'-nucleotide rich yeast extracts to such beverages beneficially enhances the natural flavor profiles without adding a yeasty flavor.

One having ordinary skill in the art would readily recognize that because such yeast extracts naturally enhance flavors without adding a different bouillon-like taste to the product, that such yeast extracts are versatile in their applications and are not limited to diet and light beverage flavor enhancers but can be used in other foods as disclosed by Kortes.

One having ordinary skill in the art would also recognize that because such yeast extracts naturally enhance the fullness and flavor profile of diet and light beverages, that such yeast extracts would be expected to likewise enhance the fullness and flavor profile of diet and light food products.

Furthermore, Kortes teaches addition of the yeast extract to tomato juice in an Example, and also teaches application of the extract to vegetables, where the Examiner noted above that vegetables and tomato juice are considered low fat foods.

Therefore, at the time the invention was made, it would have been obvious to one having ordinary skill in the art to apply the method taught by Kortes to an unlimited number of beverages which may include "diet" or "light" dairy-based beverages such as low-fat milk and/or milk products in addition to a variety of other "diet" or "light" foods including dairy, bakery or fat/oil derived foods, given the teachings in Kortes that such yeast extracts boost the natural flavor profiles of "diet" and "light" beverages and make them taste more similar to their full-calorie counterparts.

***Response to Applicant's Remarks***

9. Applicant's Amendment and Remarks filed January 29, 2009 have been fully considered and found not to be persuasive.
10. Applicant argues the Examiner's interpretation of the term "fat note" as having an "umami" like taste as being inaccurate. However, Examiner first respectfully points to the yeast extract brand, Maxarome® used in the present specification, manufactured by DSM Food Specialties (Assignee) is a yeast extract described as "enhances umami (mouthfeel and body)".

Therefore, the Examiner gives the definition of "fat note" the broadest reasonable interpretation(s) consistent with the written description in Applicant's specification as it would be interpreted by one of ordinary skill in the art. *In Re Morris*, 127 F. 3d 1048, 1054-55, 44 USPQ2s 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F. 2d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111.

Additionally, as discussed above, Potman as evidenced by *Prepared Foods*, Kortes, Aoyanagi, and *Thermal Process Flavorings* all teach a method of improving the flavor profile or enhancing the flavors of foods, where the flavor enhancement is specifically described as adding richness or creaminess without the typical taste of yeast (which is bouillon-like) due to the high content of 5'-nucleotides.

Therefore, the Examiner maintains that Applicant's amendment to describe "fat note" is consistent with how the Examiner interpreted and still interprets the terminology "fat note" as well as the word "umami".

**11. Arguments regarding the rejection of Claims 1, 8-11 under 35 USC 102(b) as anticipated by Potman as evidenced by “Creaminess: A Question of Flavor”, *Prepared Foods*.**

Applicant argues that Potman is not relevant to the present claims. However, the Examiner points out that Applicants admit Potman does teach a 5'-ribonucleotide containing yeast extract on page 8. Therefore, the Examiner deems that as such, Potman is relevant in that Applicant claims a method whereby fat note flavors of a reduced fat food are enhanced by addition of a 5'-ribonucleotide containing yeast extract.

Applicant next argues that Potman does not teach a method of improving the fat note of a reduced fat food and that the foods taught by Potman do not qualify as “reduced fat”. Applicant further argues that Potman does not teach a yeast extract comprising free amino acids and at least 8% 5'-ribonucleotides.

The Examiner considers these arguments to be moot in view of the new rejections made above where the Examiner explains very clearly that Potman teaches a method (*Col 4, lines 15-22 and 40-51*) for improving the flavor of a reduced fat food such as margarine by incorporating 0.15-5% of the 5'-ribonucleotide containing yeast extracts that meet the composition limitations as claimed by Applicant:

15 The yeast extract obtained in accordance with the present invention without addition of extra RNA, typically comprises:  
20-34% by weight of protein material (4-74% by weight of peptides and 3-80% by weight of free amino acids);  
20 0.1-15, preferably 1-8% by weight of guanosine-5'-monophosphate, all calculated on dry extract.

The invention also comprises the yeast extract prepared by the process described above.  
40 One embodiment of the present invention is therefore a method for flavouring food compositions by incorporating in the food composition a flavour as disclosed hereinbefore. More in particular the flavour material is used to improve the flavour of soups, meat products, instant gravies, margarine, frying fat, drinks, bakery products, cheese, confectionary products and the like. The amount of flavour used in the food compositions varies widely but usually ranges between 0.1 and 10% (calculated as dry yeast extract flavour on the food composition ready for consumption). Preferably these amounts lie between 0.15 and 5%.

12. Arguments regarding the rejection of Claims 1-5 and 7-8 under 35 USC 102(e) as anticipated by Kortess (WO 03/063614).

Applicant argues that Examiner applies Kortess "based upon the earlier effective US filing date of the reference" and states that Applicant's US effective filing date is July 12, 2004 with a claim to a foreign priority filing date of July 16, 2003.

However, the Examiner respectfully refers Applicant to MPEP 706.02(f)(1), which states that for international WIPO applications filed on or after Nov. 29, 2000, that are in English and designate the US that the 102(e) date is the international filing date:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The Kortes reference is a WIPO publication with an international filing date of January 29, 2003. Therefore the US Effective filing date for the purposes of 102(c) is the international filing date of January 29, 2003 and is thus before Applicant's claimed foreign priority filing date.

Applicant next argues that Kortes does not teach a method for improving the fat note of reduced fat foods and that the 5'-ribonucleotide rich yeast extract taught by Kortes enhances the savory taste, where Applicant argues that savory is equivalent to brothy or having umami.

As presented above, the Examiner maintains that given the broadest reasonable interpretation of fat note, even in the context of Examiner's newly amended claims, that savory and umami flavors still have "fat note" qualities in that they are flavor enhancing and commonly known as the "fifth taste" of fullness to salty, sweet, bitter and sour as described by Kortes in lines 24-25 of page 1. Furthermore, on page 5, lines 15-16, Kortes teaches addition of a 5'-nucleotide containing yeast extract to beverages and other food substrates to provide enhanced "savory" attributes without the yeast taste itself, where the yeast extract used is Maxarome® which is described as stated above by the manufacturer as imparting a mouthfeel and "umami" quality to food products it is added to. Therefore, given the teaching that such a yeast extract imparts a mouthfeel or "umami" and compliments the food product's savory flavor profiles without the added taste of the yeast extract itself, the Examiner broadly interprets the meaning of the word savory as imparting a certain richness or fullness to the product to which it is added.

Applicant notes that Kortes teaches use of 5'-ribonucleotide containing yeast extract in improving the taste of beverages on page 11 of the remarks. The Examiner agrees that Kortes uses this flavor enhancer in beverages, particularly light or diet beverages as described in lines 18-23 on page 5, and that in lines 15-16 of page 5, addition of such a yeast extract, "does not



result in any taste or specific note of the yeast extract itself". As presented above, Kortes teaches that addition of such yeast extracts to light or diet beverages increases the perception that such beverages taste more like their full-calorie and non-diet equivalents.

Applicant further argues that the additional foods Kortes teaches as benefiting from the flavor enhancing properties of 5'-nucleotide yeast extracts such as soups, sauces, marinades, flavor seasonings, meat, vegetables, and gravies on p. 1, lines 29-30 must be interpreted as full-fat, normal products. However, the Examiner respectfully points out that one having ordinary skill in the art would recognize vegetables as commonly having little to no fat content and therefore reduced fat foods.

Applicant argues that Kortes does not refer to reduced fat foods and hence relates to a different technical problem. The Examiner respectfully disagrees.

In addition to the above stated reasons, where the Examiner considers the teachings in Kortes of vegetables and tomato juices to be reduced fat foods, Kortes teaches addition of 5'-nucleotide containing yeast extract to light or diet beverages to enhance the savory flavors without a bouillon like taste. Therefore, it would be obvious to one having ordinary skill in the art that such "savory" flavor enhancements highlight the richness and fullness of the food or beverage flavors commonly associated with the non-diet varieties of beverages and foods having a richer and fuller flavor profile. Additionally, it would be obvious to one having ordinary skill in the art that given the teachings in Kortes to add such yeast extracts to diet or light beverages, that beverages are not limited to diet or light sodas, juices and beers but include all beverages. Likewise, given the broadest reasonable interpretation, "beverages" may be considered as foods given the nutritional value provided by some beverages.

13. The Examiner acknowledges that Applicant traverses the rejections made under 35 USC 103(a) but fails to provide arguments against such rejections and reserves the right to do in the future.

However, Applicant does argue that the dependent claims are not rendered obvious by the art applied under 103(a) because the limitations of an independent claim are incorporated into their dependent claims.

In view of the responses to Applicant's arguments and remarks, and the newly made rejections, the Examiner deems these arguments moot.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to APRIL C. INYARD whose telephone number is (571) 270-1245. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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